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November 17, 2022

Liane Randolph
Chair
Air Resources Board
1001 I Street
Sacramento, CA 95814

Comment submitted electronically via
https://www.arb.ca.gov/lispub/comm/iframe_bcsubform.php?listname=locomotive22&comm_period=A

RE: Proposed In-Use Locomotive Regulation

Dear Chair Randolph,

This letter sets forth Sierra Northern Railway's ("Sierra Northern") comments concerning the California Air Resources Board's ("CARB") Proposed In-Use Locomotive Regulation (the "Proposed Regulation"). Sierra Northern supports the comments of the Association of American Railroads, the American Short Line and Regional Railroad Association, and the California Short Line Railroad Association (the "Railroad Association Comments") on the issue of federal preemption, and on all of the other issues addressed by the Railroad Association Comments. Sierra Northern appreciates the opportunity to also provide these company-specific comments to CARB.

This comment incorporates by reference the comment Sierra Railroad Company filed on November 7, 2022 ("Sierra Railroad Comment")[1] and continues to support the Tier 3 Strategy (the "Sierra Strategy") described in detail in the Sierra Railroad Comment. The Sierra Strategy leverages the average $350,000 cost of a fully refurbished Tier 3 locomotive to deliver rapid and cost-effective emission reductions. This comment provides graphical representations that depict the real-world benefits of the Sierra strategy in terms of speed of emissions reductions, cost-effectiveness of those reductions, and cumulative emission reduction benefits.

The various emissions analyses that are depicted in this comment were developed using the best available data on the California short line railroad industry, the information contained in the Initial Statement of Reasons and in other materials released by CARB as part of this rulemaking, documents received from CARB in response to a Public Records Act request, and emissions data pertaining to locomotive tiers developed by the U.S. Environmental Protection Agency.

[1] See California Air Resources Board, Board Meeting Comments Log at entry #34, "Sierra Railroad Comment and Exhibits RE: Proposed In-Use Locomotive Regulation," at https://www.arb.ca.gov/lispub/comm/iframe_bccomdisp.php?listname=locomotive22&comment_num=34&virt_num=32

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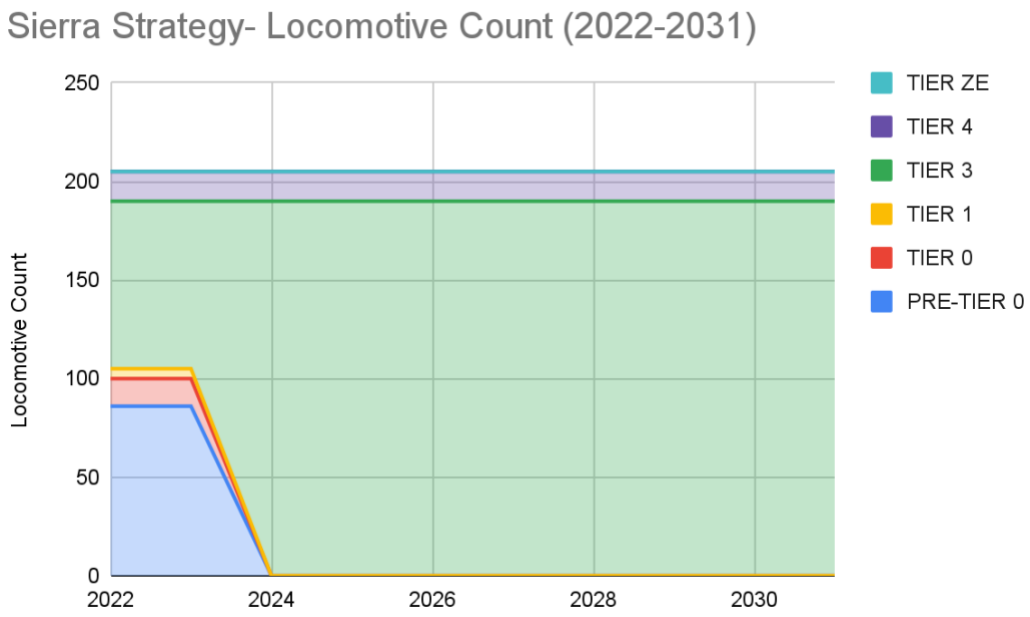
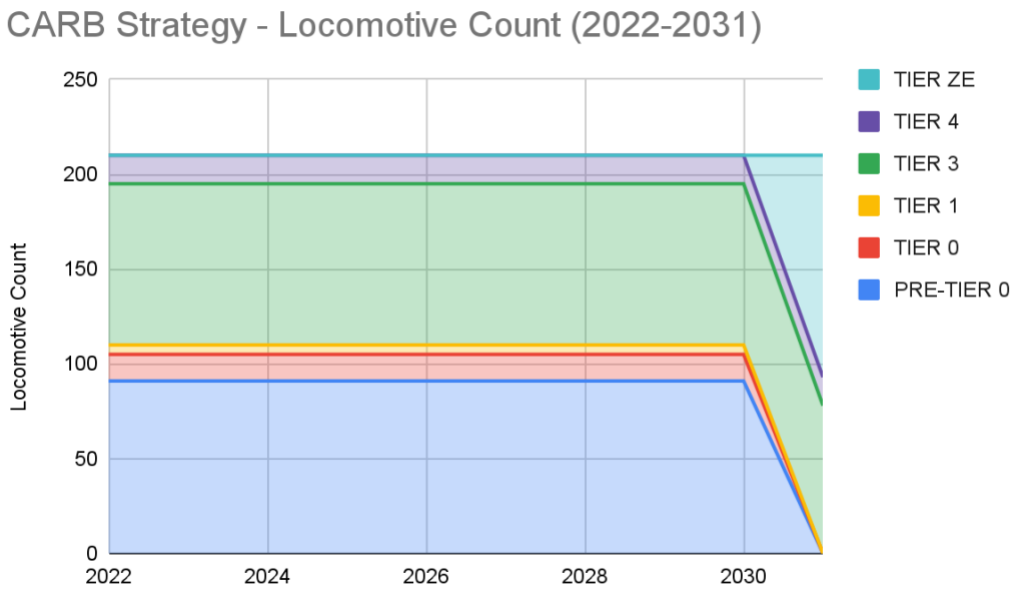
## I. Comparison of Locomotive Inventories

The central component of the Sierra Strategy is the rapid substitution of cleaner burning Tier 3 locomotives to replace the substantial number of Tier 1, Tier 0, and Pre-Tier 0 locomotives that currently dominate California's overall short line fleet. The following "Locomotive Count" line graphs illustrate the distinct approaches to transitioning California's short line fleet of the Sierra Strategy versus the Proposed Regulation.

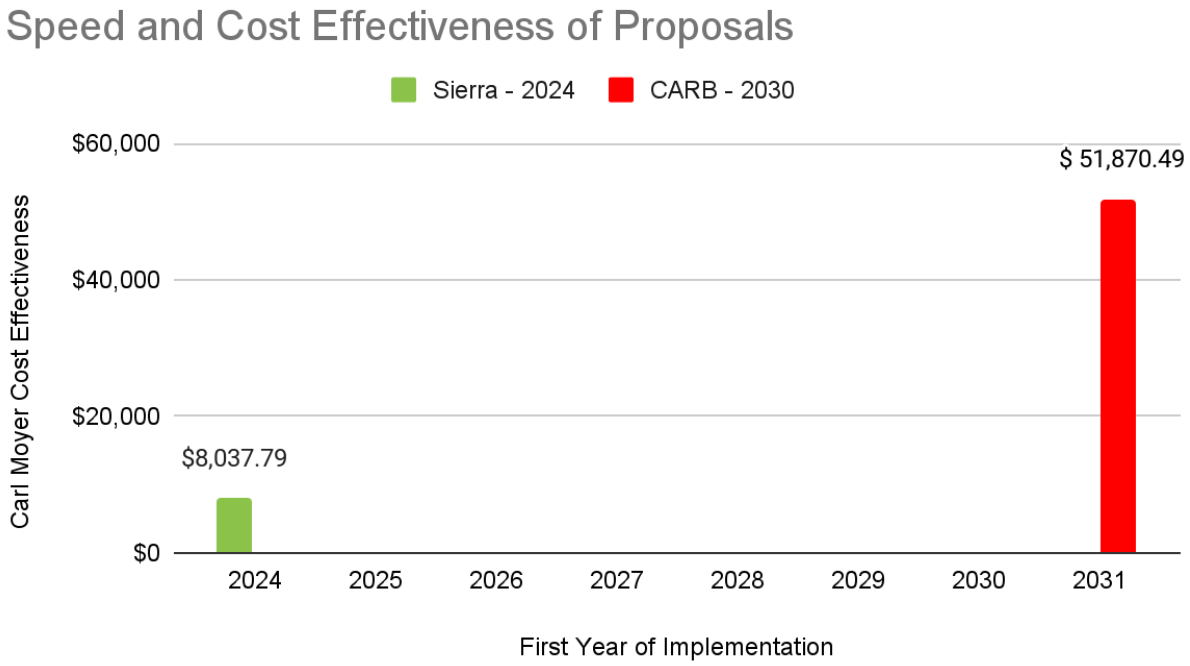
## Locomotive Count by Tier Rating for CARB and Sierra Emission Reduction Strategies



## II. Comparison of Speed of Implementation and Cost-Effectiveness

The following bar chart depicts both the speed of implementation and the cost-effectiveness of the Sierra Strategy versus the Proposed Regulation. The underlying methodology used to calculate cost-effectiveness is the same methodology used within the Carl Moyer Program. Based on this methodology, the Sierra Strategy delivers emission reductions approximately 6.5 times more cost-effective than the Proposed Regulation, and begins delivering these reductions seven years before the Proposed Regulation.




***Sierra Proposal Delivers Emissions Reductions 6 Years Earlier and 84% More Cost-Effectively***

**CARL MOYER METHODOLOGY:**

**Annual Emissions:**

Estimated annual emissions based on fuel consumed using emission factors or converted emission standard (tons/yr): Annual emissions by pollutant (tons/yr) = (emission factor (g/bhp-hr) * Fuel Consumption Rate (bhp-hr/gal)) * (activity (gal/yr) * percentage operation in CA * ton / 907,200g

**Calculate annual weighted surplus emission reductions (tons/yr):**

Annual weighted surplus emission reductions (weighted tons/yr) Weighted emission reductions (weighted tons/yr) = NOx reductions (tons/yr) + ROG reductions (tons/yr) + (20 * PM reductions (tons/yr))

**Cost Effectiveness Calculation:**

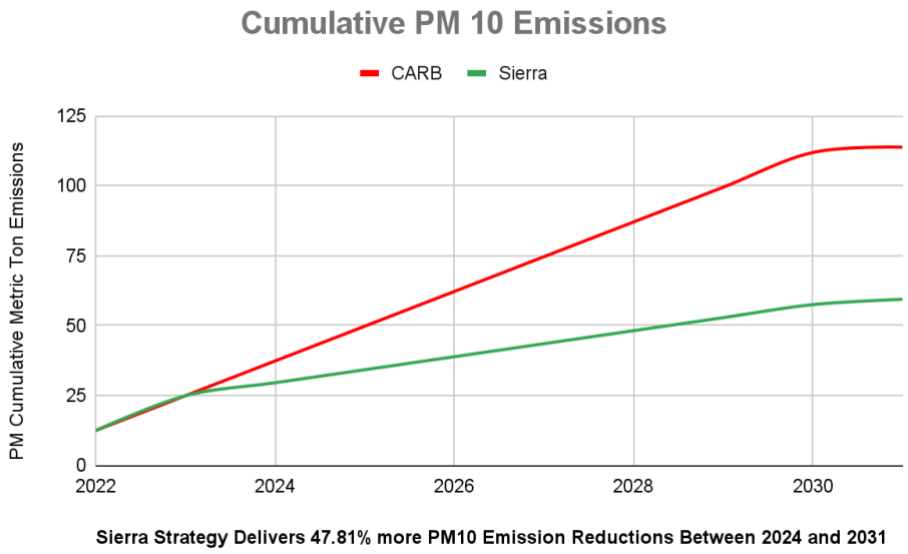
The difference in annual emissions between old and new locomotives is calculated and then used to calculate the weighted surplus emissions. Once you have the weighted surplus, you multiply the cost of the new locomotive by the maximum grant participation of 85% and then by the discount rate (CRF); you then divide by the weighted surplus to reach the cost-effectiveness per $/Ton.

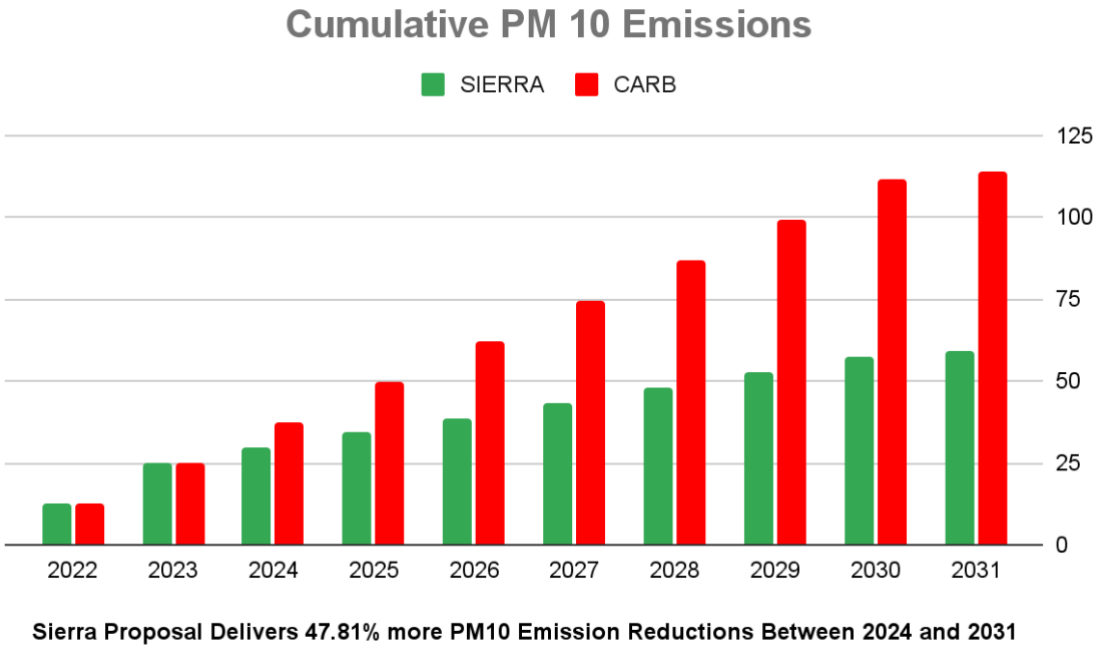
## III. Comparison of Cumulative PM10 Reductions

As a result of the seven-year head start on emissions reductions provided by the Sierra Strategy, it provides almost 50% more cumulative PM10 reductions than the Proposed Regulation (by 2031) at about 15% of the total cost of the Proposed Regulation.[2]

Cumulative PM 10 Emissions Reduction

Achieved by CARB and Sierra Strategies



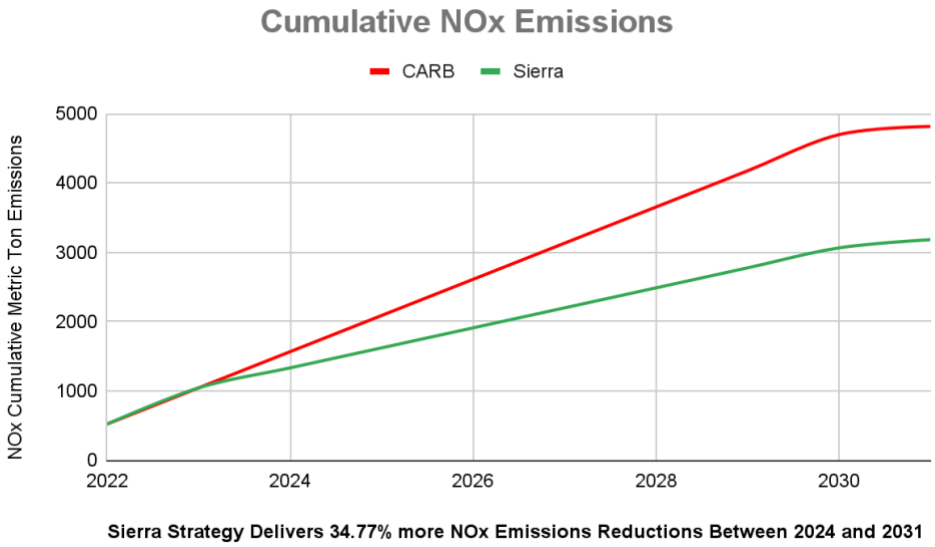

[2] See page 3 of this comment for discussion of Carl Moyer Program cost-effectiveness methodology.

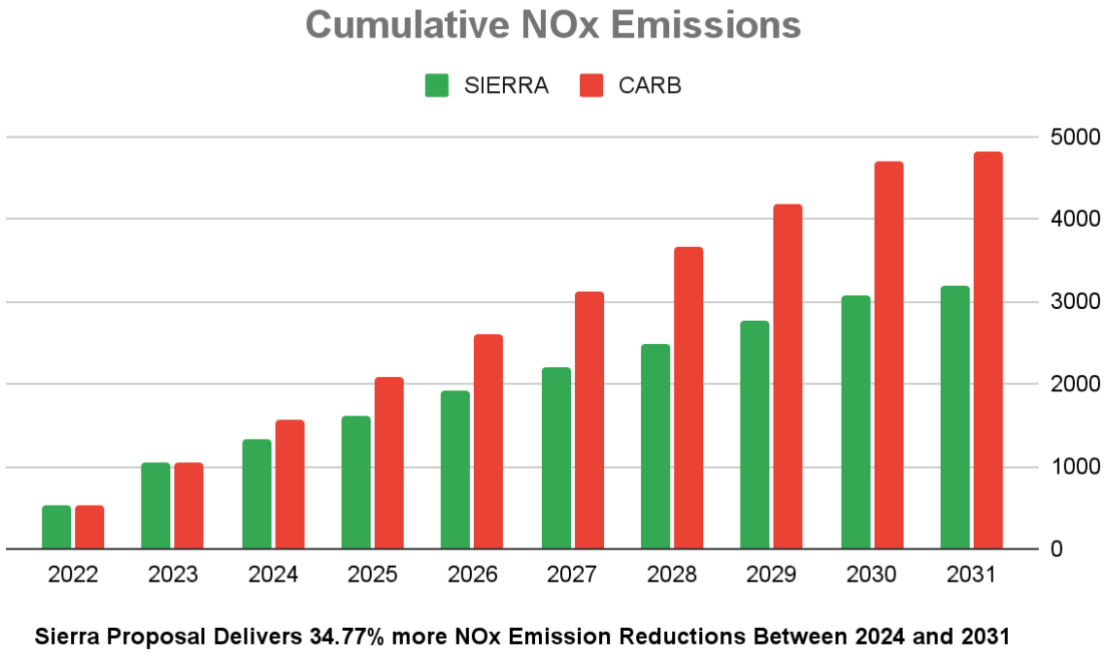
## IV. Comparison of Cumulative NOx Emission Reductions

As a result of the seven-year head start on emissions reductions provided by the Sierra Strategy, it provides almost 35% more cumulative NOx reductions than the Proposed Regulation (by 2031).[3]

Cumulative NOx Emission Reductions

for CARB and Sierra Strategies



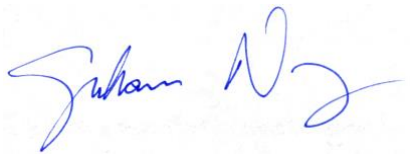




[3] See page 3 of this comment for discussion of Carl Moyer Program cost-effectiveness methodology.

## Conclusion

We appreciate the opportunity to submit these comments and remain available for additional engagement regarding the Proposed Regulation and the opportunities that exist to enhance the benefits, and to reduce the costs, to Californians of transitioning California's short line fleet.

Best Regards,



Graham Noyes

Cc: Michael Hart, Sierra Northern Railway